phenomena being explained. However, it is important to note that offering an explanation is still an epistemic activity and that the mechanism in nature does not directly perform any explanatory work.[8]

There are several ways to appreciate the epistemic character of mechanistic explanation. First, the mechanisms operative in our cells were operative long before cell biologists discovered and invoked them to explain cellular phenomena. The mechanisms are not themselves the explanations; it is the scientist's discovery and rendering of aspects of the mechanism that produces what counts as an explanation. Second, the difference between the mechanism and the mechanistic explanation is particularly obvious when considering incorrect mechanistic explanations – in such a case a scientist has still appealed to a mechanism, but not one operative in nature. Such a mechanism exists only in the representation offered by the scientist. It is thus the mechanism as represented, not the mechanism itself, that figures in explanation. (It is also the phenomenon as represented that scientists seek to explain.) Thus, scientists offer a mechanistic explanation by identifying and representing parts and operations regarded as key to producing the phenomenon and showing how, appropriately organized, they can do so.[9]

Mechanisms can be represented either in linguistic descriptions or in diagrams. Philosophical accounts of science have tended to privilege linguistic representations and regard diagrams as at best crutches for following the linguistic argument. When one considers the actual practice of scientists in reading papers, however, the tables seem to be turned. It is common for readers to scan the abstract and then jump to key figures. To the extent that crutches are involved, the figure captions that provide commentary on the figures play this role. Consider a paper in which a mechanistic explanation is proposed. The diagram provides a vehicle for representing the complex interactions among operations, while the commentary can only characterize these one at a time. The text of the paper then provides yet further commentary: about how the mechanism is expected to operate (introduction), how evidence as to its operation was procured (methods), what evidence was advanced (results), and the interpretation of how these results bear on the proposed mechanism

[8] This point is eloquently stated by Christian de Duve (1984, p. 18) at the outset of his masterful *Tour of the Living Cell*: "Every object, every site, every happening, every process, every mechanism that will be pointed out as though it were there to be seen is actually a product of individual human brains mulling and churning over collections of images and sets of figures, themselves the products of recordings made by intricate instruments on biological materials subject to complex experimental manipulations."

[9] I thank Cory Wright for impressing on me that a mechanism in nature does not itself explain anything.